

Space Qualified Non-Destructive Evaluation and Structural Health Monitoring Technology, Phase I

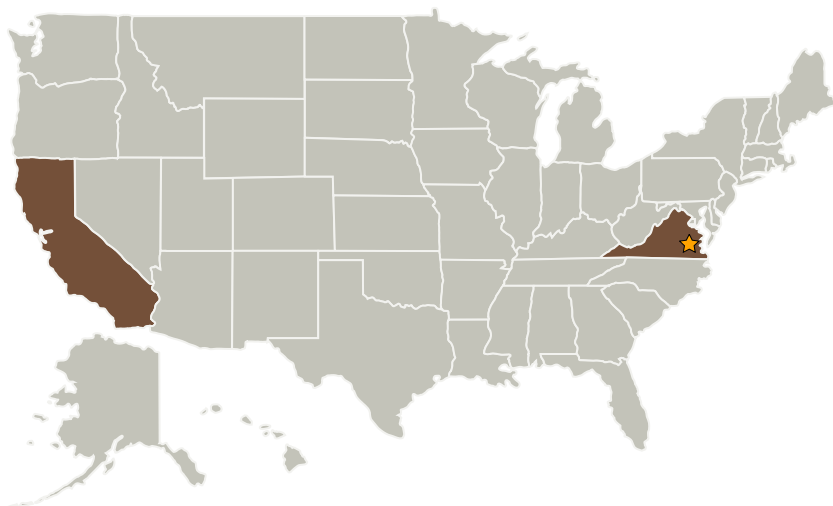
Completed Technology Project (2004 - 2005)



Project Introduction

NextGen Aeronautics is proposing an innovative space qualified non-destructive evaluation and health monitoring technology. The technology is built on concepts developed by PIs from the University of South Carolina (USC) and NextGen. Excitation of preferential Lamb/Rayleigh wave modes, utilization of phased array concepts, and utilization of software algorithms rather than hardware for beam forming and signal analysis, are three innovative concepts in the proposed technology. These concepts set our approach apart from most of the technologies in use or under development at present. The purpose of Phase I effort is to firmly establish the feasibility of the technology developed at USC. This will be mostly accomplished by experimental validation on realistic test articles. Stiffened, bonded and mechanically fastened metallic panels will be fabricated and tested to mitigate most of the risk going into Phase II. We will demonstrate the ability to detect cracks, corrosion and debonds. Technology, under planned development, will be applicable to various metallic, composite, plastic and ceramic materials as structural material or adhesives, sealants and coatings. This technology offers the potential for low cost and light weight damage detection capabilities to permit continuous or on-demand structural damage assessment of the entire structure.

Primary U.S. Work Locations and Key Partners



Space Qualified Non-Destructive Evaluation and Structural Health Monitoring Technology, Phase I

Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Space Qualified Non-Destructive Evaluation and Structural Health Monitoring Technology, Phase I

Completed Technology Project (2004 - 2005)



Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
NextGen Aeronautics, Inc.	Supporting Organization	Industry Minority-Owned Business, Small Disadvantaged Business (SDB)	Torrance, California

Primary U.S. Work Locations

California	Virginia
------------	----------

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
 - └ TX12.2 Structures
 - └ TX12.2.3 Reliability and Sustainment